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Oklahoma A. and M. College, Stillwater
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VICTORIA BLIGHT OF OATS: A Dangerous New Plant Disease

By
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Effect of Victoria blight in an Ohio test. The variety in the center is susceptible. **The varieties on each side are resistant.**

VICTORIA BLIGHT OF OATS:

A Dangerous New Plant Disease

By J. HARVEY McLAUGHLIN
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Victoria blight of oats was observed in Oklahoma in 1947.* It is a root rotting and blight disease. This circular tells you how to recognize and combat Victoria blight so that you may avoid the heavy losses suffered by growers in other oat-growing regions.

The Present Situation

Where Found: Victoria blight was first observed in Iowa oat fields in 1945. Since that time, the disease has been reported from almost all oat-growing regions in the United States.

Losses Reported: Losses in oat yields caused by Victoria blight have been reported from Arkansas, Florida, Indiana, Iowa, Kansas, Missouri, Texas and other states. Iowa reported 5% loss in 1945 and 25% loss in 1946 in their Victoria-type oats. Kansas reported 1% loss in 1946 and 20 to 30% loss in the eastern part of the State in 1947. Note how greatly the crop losses increased in only a year's time.

Importance in Oklahoma: Losses in oat yields due to Victoria blight have not yet been reported from Oklahoma, but it is known that the fungus that causes Victoria blight can multiply rapidly and cause heavy losses in only one or two year's time. This disease is potentially dangerous to every oat grower in Oklahoma.

The Disease

Cause: Victoria blight of oats is caused by a fungus known to scientists by the name *Helminthosporium victoriae*. It is commonly known as a sooty mold fungus.

Plants Affected: Oats are the only important crop plants attacked. All oat varieties which have the Victoria variety in their parentage are susceptible to Victoria blight.

How to Recognize the Disease: Many seeds may rot in the soil so that seedling stands are poor. Diseased seedlings are stunted and have leaves streaked with orange or orange-brown colored stripes,

* The only definitely identified case was found on the Experiment Station farm at Stillwater, where the test plots are checked almost daily by men familiar with diseases of small grains. It is probable that other cases may have occurred in the State without being recognized.

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especially along the margins of the leaves. The roots of infected plants are rotted off; the plants are easily pulled up. Diseased plants almost invariably die. The stems of dead plants become blackened, especially at the joints, and break over. Severely infected fields of oats may lodge 100%.

How the Fungus Lives From Year to Year: The fungus that causes Victoria blight can live from year to year in the soil and on old oat straw in the soil. Oats grown in infested soil may become diseased at any time between the time of germination and maturity. Seed from a field of diseased oats also can carry the fungus over from year to year. The spores of the fungus are borne on the hulls and seed coats of the grain. These spores germinate and attack the young seedlings.

Recommendations for Oklahoma Oat Growers

Plant Oklahoma-grown Certified Seed. Oat seed harvested in Oklahoma in 1947 should be practically free of the fungus that causes Victoria blight. The use of certified seed is crop insurance worth far more than the slight additional cost involved. It is true to variety and is practically free of weed seed and seed-borne diseases. Seed shipped into Oklahoma may be infested with the fungus that causes Victoria blight.

Plant Cleaned Seed. All oat seed should be cleaned to remove light-weight diseased kernels, weed seed, chaff, etc. Better seedling stands and more vigorous plants are the result of cleaned seed.

Plant Treated Seed. Chemical treatment of oat seed has long been a recommendation for the control of oat smuts. In addition, it has been found that seed treatment with New Improved Ceresan at ½ ounce per bushel of seed helps to control Victoria blight by killing the fungus spores carried on the seed. When seed of a susceptible variety is planted in infested soil, seed treatment may give only partial control. Experiments in Iowa have shown that seed treatment may increase yields in oat varieties susceptible to Victoria blight as much as 50% or more. Seed should be treated at least two days before planting and may be treated as long as two months before planting.

Varietal Susceptibility and Resistance

Varieties Susceptible to Victoria Blight: All oat varieties which have the Victoria variety in their parentage are susceptible to Victoria blight. Some of these varieties are: Boone, Cedar, Control, Forvic, Fultex, Letoria, Neosho, Osage, Stanton, Tama, Traveler, Vicland and Vikota.

Varieties Resistant to Victoria Blight: Oat varieties that are resistant to Victoria blight and adapted to Oklahoma growing conditions are: Forkedeer, Fulton, Fulwin, Kanota, Red Rustproof (Texas Red), Tennex, and Wintok. The Bond hybrid selections such as Benton, Bonda, Clinton, Eaton, and Mindo also are resistant to Victoria blight but are not adapted to Oklahoma.

Status of Recommended Varieties: The oat varieties at present on the Experiment Station's recommended list have disease resistance or susceptibility as follows:

Spring oats: Red Rustproof (Texas Red), Nortex, Fulton and Kanota are resistant to Victoria blight but susceptible to crown rust. Neosho is susceptible to Victoria blight but resistant to crown rust and may be profitably grown until Victoria blight becomes destructive in Oklahoma.

Winter oats: Forkedeer, Tennex and Wintok are resistant to Victoria blight but susceptible to crown rust. Stanton is susceptible to Victoria blight and resistant to crown rust.

These oat varieties are recommended because they are better adapted to Oklahoma growing conditions. However, they are susceptible to some of the important oat diseases, so that new and better varieties are needed. The small-grain investigators of the Experiment Station are breeding and testing new strains of oats in a search for varieties combining adaptation to Oklahoma growing conditions with high yields and resistance to rust, smut, and Victoria blight. It is suggested that older varieties be replaced with newer, improved, recommended varieties as rapidly as they become available.